



Presqu'ile

Resource Management
Implementation Plan
Beach and Dune



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Printed in Ontario, Canada

Cover photos: Main - Recreational Beach; Inset top – Shorebirds; Inset bottom – Recreational Beach Use

Photos taken by: MNR; M. Rose; MNR

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Print copies of this publication are available from the Ministry of Natural Resources, Ontario Parks from the following location:

Presqu'ile Provincial Park
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Brighton, Ontario K0K 1H0
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MNR 52223

(30 P.R., 23 03 09)

ISBN 978-1-4249-8698-9 (Print)

ISBN 978-1-4249-8699-6 (PDF)

Printed on recycled paper.

March 2009

Dear Sir/Madam,

I am pleased to approve the Presqu'ile Provincial Park Beach and Dune Resource Management Implementation Plan.

The implementation plan outlines the management approach for beach and dune areas in specific zones within the park, specifically for continuation of recreation opportunities and migratory shorebird habitat. The guidelines in the plan are in keeping with the objectives in the Presqu'ile Provincial Park Management Plan (2000). The plan meets specific zone NE1, NR2 and NR3 resource management planning commitments in the park management plan.

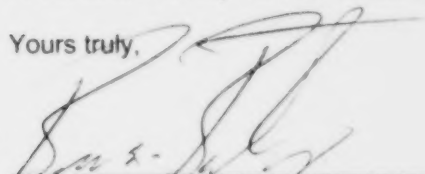
This document outlines a prioritized implementation strategy and summarizes the public consultation that occurred as part of the planning process.

The implementation plan identifies several projects; consultation and evaluation requirements for these projects under *A Class Environmental Assessment for Provincial Parks and Conservation Reserves* were met through the implementation planning process.

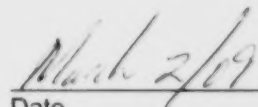
The plan will be used to guide the management of the beach and dune areas in Presqu'ile Provincial Park. It may be reviewed at 10 year intervals to address changing issues or conditions, and may be amended as the need arises.

I wish to extend my sincere thanks to all those who participated in the planning process.

Yours truly,



Bruce Bateman
Southeast Zone Manager
Ontario Parks



Date

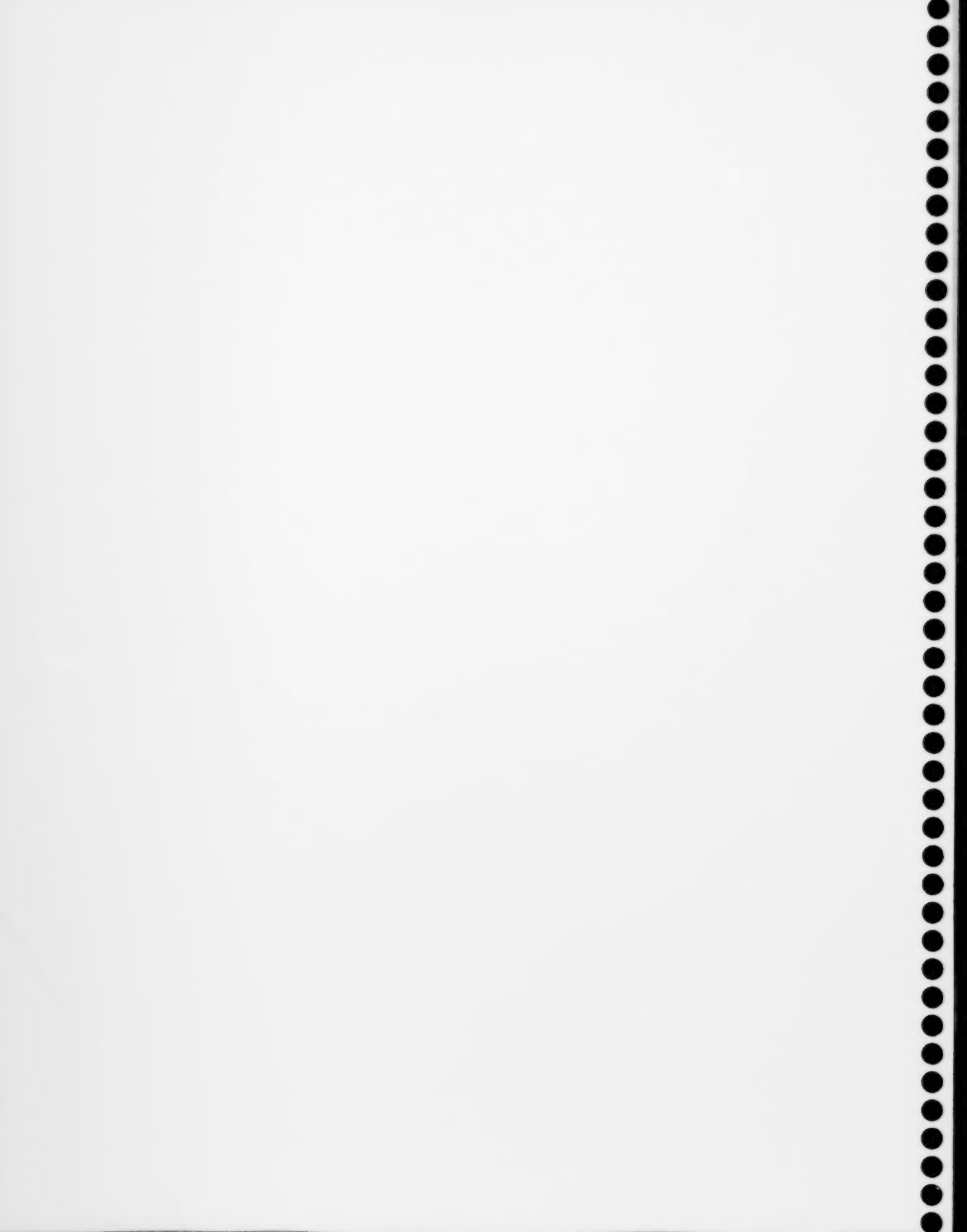


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1. INTRODUCTION

Presqu'île Provincial Park is an approximately 970 hectare (ha) natural environment class provincial park located along the north shore of Lake Ontario, within the Municipality of Brighton (Figure 1). The park is a popular destination, with about 200,000 visitors for the 2007 operating season (MNR 2008). Recreational uses related to the beach and dune system include swimming and other water sports, sunning, beach sports, birdwatching and walking.

Presqu'île is one of several protected areas along the north shore of Lake Ontario, including Sandbanks and North Beach Provincial Parks and Crown and Municipal lands. The park, including the beach and dune system, is a highly significant landform known as a "tombolo" (a barrier beach linking a former island with the mainland). The beach area is significant habitat for migrating and resident shorebirds and landbirds. The sand beach at the park is one of the outstanding recreational beaches on Lake Ontario's north shore, and is a strongly valued recreational facility.

The beach has a long history of management, beginning with the Park Commission in the 1920s (Bergeron and Browne 1994; Presqu'île Provincial Park historical files). Approximately half of the beach within the park has been actively managed to some degree by the Ministry of Natural Resources for more than 40 years, since the park was established in 1956. There has also been active management within the foredunes and the dunes. Management has resulted in a broadening and flattening of the unvegetated beach, making it attractive to shorebirds and to recreational users. Both the recreational opportunities and habitat for shorebirds that exist today are at least in part the result of past and current management of the system. Some on-going natural processes are still occurring along with human management.

This plan is intended to provide direction for beach and dune management and stewardship activities at Presqu'île Provincial Park. It begins with the planning context for beach and dune stewardship and a description of the beach and dune system, followed by detailed guidelines.

1.1 Park Management Plan Direction

The Presqu'île Provincial Park Management Plan was released in 2000. During the planning process, extensive public consultation confirmed that the beach area is highly valued by a diverse group of users. The management plan acknowledges that the park's beach is highly significant for shorebirds.

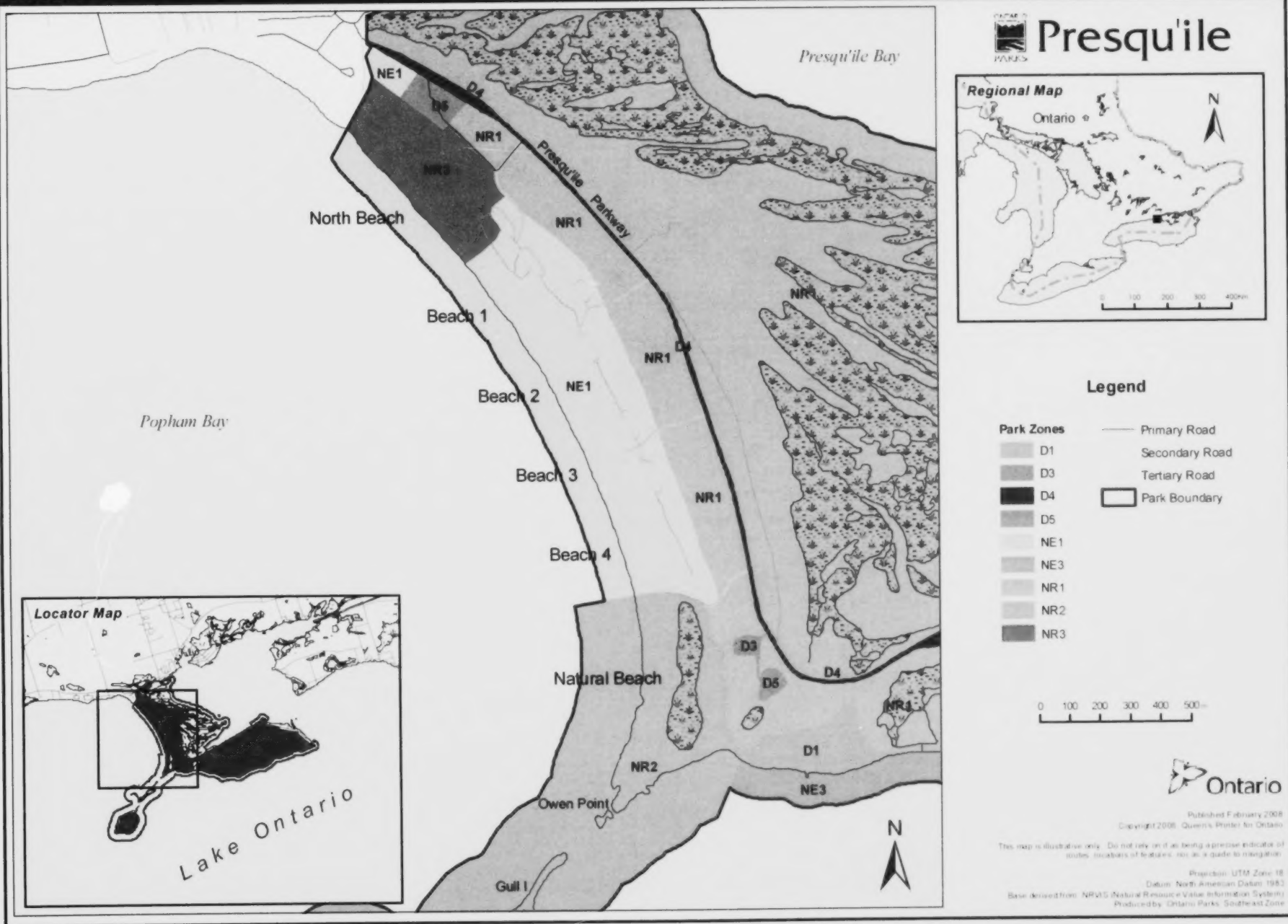
Through the park management plan, the park's lands and waters are organized into distinct zones for management purposes. Portions of the beach and dune system are found in three separate zones (Figure 1):

- Natural Environment Zone 1 (NE1) : Beach – Foredunes;
- Nature Reserve Zone 2 (NR2) : Owen Point – Islands; and
- Nature Reserve Zone 3 (NR3): North Beach – Foredunes.

The park management plan descriptions for these three zones are included in Appendix A.

FIGURE 1

PARK ZONING AND BEACH & DUNE MANAGEMENT AREAS



PARK ZONING AND BEACH & DUNE MANAGEMENT AREAS



The park management plan states that the central objective for natural environment zone NE1 is "to optimize conditions for migrating birds, while seeking to maintain quality beach recreation opportunities in the times and places where those opportunities are most in demand". The park management plan also states:

"...specific principles to be adhered to in preparing [the zone NE1] resource management plan will include the following.

- The park's current commitment to foredune protection and revegetation will be continued.
- Disturbance to shorebirds will be minimized.
- Natural processes will be used wherever possible.
- Experimentation with various management approaches and techniques will be encouraged, and their effects monitored.
- One experimental approach may be to restrict access to limited parts of the beach for limited times, where and when critical to bird migration. Another may be to erect snow fences at points where they would promote sand deposition.
- The beach managed for recreation will be fully open to the public year round, except for:
 - emergency closures"...,
 - "access restrictions as described above, outside the management seasons only.
- The focus on a high standard of management of the beach managed for recreation during the management seasons should not prevent more limited management actions from being undertaken as needed during the rest of the year."

1.2 Beach and Dune Management Plan Preparation

In 1988 a Beach Management Strategy was drafted to address the needs of migrating shorebirds and human beach users. In 2002 this draft strategy was updated and has provided guidance to staff in the interim.

A Beach Management Advisory Committee was established in 2005 to provide insight and input during preparation of a formal plan. The committee includes a balance of expertise from Ministry of Natural Resources (MNR), other government agencies, universities, the broader birding community and local residents. The role of the Advisory Committee is to discuss previous and current management practices, identify any other appropriate management practices, evaluate the effectiveness of these practices in optimizing conditions for migrating birds and maintaining quality beaches for recreation, and to prepare recommendations on future management activities.

This 2009 resource management implementation plan is the approved direction for the park. It was prepared under *A Class Environmental Assessment for Provincial Parks and Conservation Reserves* (Class EA-PPCR) and was subject to public and Aboriginal consultation (Section 7.0). **Specific guidelines are found in Section 4.0, highlighted in bold.**

- The park management plan calls for individual resource management plans to be written for each of the zones found within Presqu'île. This plan contains the beach and dune management component of the required resource management plans for zones NE1, NR2 and NR3.
- This plan focuses primarily on zone NE1, the portion of the beach and dune where the majority of active management and recreation occurs.

2. GOALS AND OBJECTIVES OF BEACH AND DUNE MANAGEMENT

The goal of beach and dune management at Presqu'île, as recommended by the Advisory Committee following review and discussion of direction in the park management plan, is:

to provide quality beach recreational opportunities and habitat for migrating and resident birds, and to educate park users on the values of the beach and dune system.

This goal will be achieved through various management techniques and the natural heritage education program within the park. Based on studies of shorebird habitat use in the park over the years, the factors in the goal are not in conflict, and can be realistically met.

The specific objectives of beach and dune management are to:

Zone NE1

- maintain portions of the beach area as appropriate for permitted recreational day use activities (e.g. swimming, sunning, beach sports)
- minimize effects of recreational use on the dune and beach system
- minimize disturbance to shorebirds during migration periods
- educate park users on the significance of the resource
- protect and revegetate the foredune
- allow or mimic natural processes where possible

Zones NR2 and NR3

- protect shorebirds and minimize disturbance to them
- allow for natural system dynamics and processes
- control invasive species and restore areas where necessary (e.g. areas dominated by *Phragmites* sp.)
- optimize natural/cultural heritage interpretation wherever possible (e.g. birding at Owen Point)

3. BEACH AND DUNE SYSTEM DESCRIPTION

Beaches and dunes are interdependent, and are best managed as a system. There are biological, social and economic benefits resulting from the proper management and protection of beach and dune systems. Linkages and interactions between the environmental, social and economic components of these systems should be recognized and used in management activities (MNR 1996).

A sand dune is a mound or ridge formed by the deposition of sand, as a result of the forces of wind and water and modified by vegetation and geography. In a natural dune system, the foredune is the first dune feature landward of the beach, and exhibits some stabilization due to vegetation growth. Storm wave action may reach inland far enough to erode some, or all, of this feature (Peach 2003).

The depressed areas between dune ridges are referred to as dune slacks. These areas are typically hollows or valleys between ridges that indicate periods of time between

successive ridge development. The continuous scour of sand from within the hollow lessens the depth to the water table in these areas and provides moist conditions, which if left undisturbed can support a variety of shrubs, grasses and tree species that typically inhabit the slack regions (MNR 1996). Where these habitats occur along the shores of the Great Lakes they are called "pannes" or coastal meadow marshes, and are globally significant communities. They often support rare plant species.

The beach and dune system at Presqu'île is approximately 2.5 km in length. Presqu'île Provincial Park has both sand and pebble beaches. The park's sand beach is undergoing a constant widening process, or progradation. Dominant "carrying winds" from the northwest during the fall, winter and early spring are responsible for most of the sand deposition on the beach. There are seasonal, annual and long term (i.e., > 10 years) fluctuations in water levels on Lake Ontario that influence the dynamics of the park's beach and dune system. Also, due to the vastness of the lake there are powerful erosive forces acting during storm events (MNR 1996).

3.1 Presqu'île Beach Area Terminology and Management History

The beaches within the three park zones have been named, as described below and illustrated in Figure 1. Roughly half of the system is within natural environment zone NE1, with the other half within nature reserve zones NR2 and NR3.

Zone NR3 consists entirely of the northernmost beach and foredunes in the park, and is referred to as the "North Beach". No active beach or dune maintenance has been practiced within the North Beach since the early 1990s. This area is naturally vegetated, there are no facilities and there is little recreational use beyond occasional walkers.

Zone NE1 extends between zones NR3 and NR2 and contains the most actively managed and maintained beach and dune areas, which include the areas most used for beach recreation. For management purposes, the beach within zone NE1 is divided into four areas: Beach 1, the northernmost section; Beaches 2 and 3 in the middle; and Beach 4, the southernmost beach.

The beach in zone NE1 is actively managed only part of the year. The park management plan defines beach "management seasons" as:

- June 8 – Labour Day for Beaches 1-3; and
- June 8 – mid August for Beach 4.

Historically, much of the foredune or beach within zone NE1 has been actively managed by raking to prevent establishment of vegetation and improve recreational opportunities (Figure 2).

As a result of raking, the pools within Beaches 1, 2 and 3 have been unvegetated. Because the water table is close to the surface, beach pools remain damp for most of the summer despite attempts within zone NE1 to dry the sand by turning it over daily with a beach harrow (Section 4.1). Other attempts have been made to dry the beach pools on the managed beach. These efforts included creating drainage channels that allow the pools to drain in addition to natural drainage. Varying degrees of short-term success have resulted. After each winter the beach depressions reform.



Figure 2. Zone NE1 beach after raking

In some areas the dune to the landward side of the managed beach has undergone revegetation and fencing has been installed to trap and stabilize sand and limit / focus pedestrian traffic between the parking areas and beaches.

Over time, management activities within Beach 4 have been reduced, and Beach 4 is now considered a buffer area for the zone NR2 beach. Beach 4 is managed for shorebird habitat, not for recreation, and is not signed as a recreational beach.

The beach area within zone NR2 extends south from Beach 4 in zone NE1 to Owen Point. Little active beach and dune maintenance has been practiced within this beach area, and this is limited to trail management. Recreational use of this beach is mainly limited to the interpretive Owen Point Trail. Because it is relatively natural compared to the beach in zone NE1, this beach has been termed the "Natural Beach".

The entire beach has a gradient of organic material with the highest concentrations to the south and lowest to the north. The size and rate of dune growth suggest that sand input into the Presqu'île system is greatest at the north end of the beach (zone NR3) and lowest at the south end (zone NR2).

In most years one or more "beach pools" form in depressions found between the beach and the dunes. The number and location of these pools each year depend on lake level and precipitation levels. These pools typically hold standing water until summer and after every major rainfall. Seeps have also been observed flowing from the vegetated dune areas to the beach.

Algae accumulation along the shoreline is a significant management issue. Algae is continuously deposited, but is most noticeable in large amounts after severe weather

causing increased wave action on the lake. The large accumulations of algae are a concern for recreational users, for odour and aesthetic reasons. Significant staff resources are required to collect and remove algae from along the shoreline of Beaches 1, 2 and 3 during the management season.

3.2 Beach Profile Surveys

Beaches are products of erosion and the recovery of sand as shorelines adjust to the forces shaping them (Rogers and Nash 2003).

To successfully interpret and manage beach and dune areas, it is important to first understand the physical aspects/processes that influence these systems. To improve beach management practices, park staff have been consulting with Dr. Mary-Louise Byrne from the Department of Geography and Environmental Studies, Wilfrid Laurier University, since 2000.

Beach profile surveys were completed in 2000, 2002 and 2005.

Dr. Byrne surveyed the beach on four occasions from 2000-2002 (Dec. 18, 2000, May 02, 2001, July 25, 2001 and November 9, 2002) and developed elevation profiles. With the goal of developing a drier beach as the desired outcome for Beaches 1 and 2, a list of recommendations was also provided.

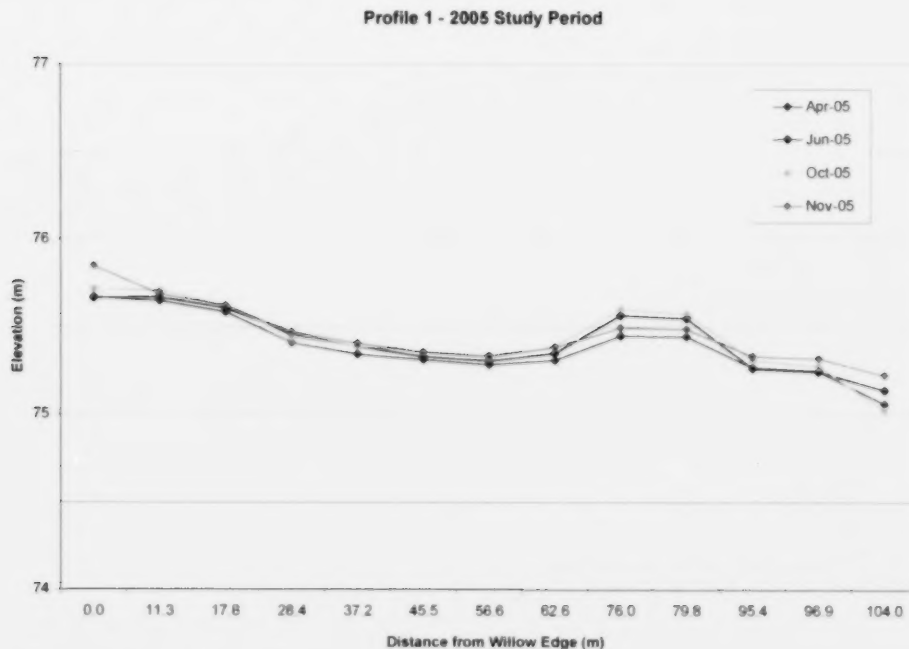


Figure 3. Beach 1 profile sketch

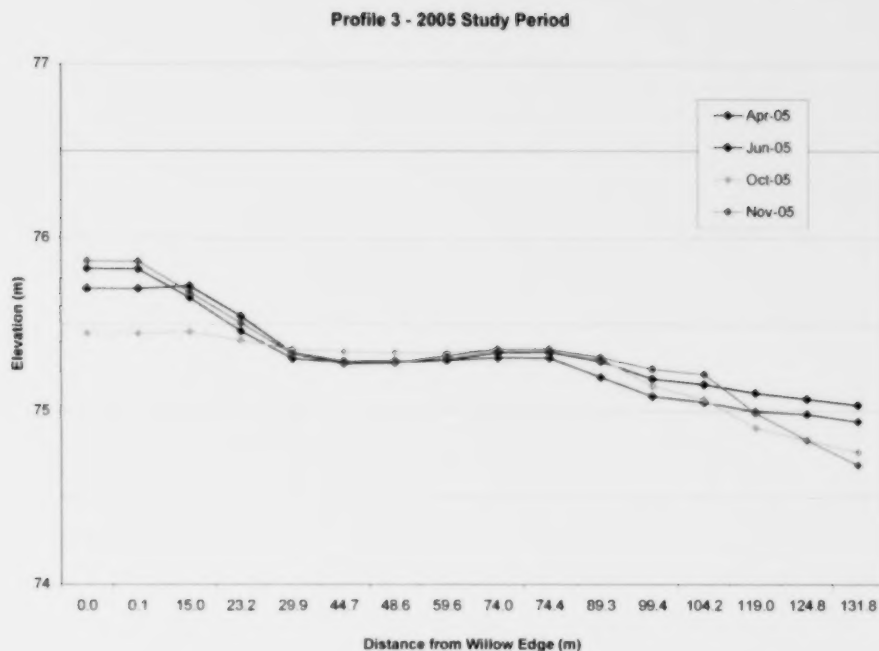


Figure 4. Beach 3 profile sketch

Follow-up surveys were completed in 2005 on four occasions from spring to late fall (Figures 3 and 4). The spring dates were chosen to include periods prior to and immediately following reapplication of sand to the managed beach.

These studies have shown that the orientation of the beach and the vegetation changes from Beach 1 to Beach 3, such that the profile is less natural moving from Beaches 1 to 3. Sand accumulation would naturally occur on Beach 1 and the northern section of Beach 2; these areas are where beaches and dunes would be expected to occur naturally. The formation of depressions is identified as part of a natural process, and seeps have also been noticed in the vegetated area.

Earlier recommendations have since been updated based on these further studies, and have been adapted as guidelines in Section 4.8. There is a need for more surveys of microtopography and hydrogeology to fully understand the natural drainage system of the beach, and how best to manage and work with nature.

3.3 Ecological Significance of the Presqu'ile Staging Area

Canadian Wildlife Service staff has noted that Presqu'ile is consistently one of the best shorebird stopover areas on the Great Lakes. Ken Ross, coordinator of the Ontario Shorebird Survey for the Canadian Wildlife Service, describes Presqu'ile as "the shoreline site which routinely supports the most migrant shorebirds along the Canadian Great Lakes" (Ross 2002).

Presqu'ile's beach has also been identified as a potential Regional Site within the Western Hemisphere Shorebird Reserve Network (WHSRN). The WHSRN is a partnership among parties interested in shorebird conservation including Federal governments (Canada and United States), non-government organizations (NGOs) and private citizens. In the 2000 Presqu'ile Provincial Park Management Plan, Ontario Parks stated it "will support designation of Presqu'ile Provincial Park under any international conservation initiative that will recognize the park's natural and cultural heritage, provided that designation does not have any implications with continued ownership and operation of the park by the Province".

In 2000, the park was also recognized as part of a globally significant Important Bird Area (IBA) within the North American Important Bird Areas Program. The Presqu'ile Important Bird Area Conservation Plan states that the park is "the preferred resting place for shorebirds on the Ontario side of the Great Lakes, on their way to and from their breeding grounds" and identifies Beach 1 to Owen Point as part of an area of significance for shorebirds (Cheskey 1999). A number of criteria must be met for a site to receive IBA recognition. One of these criteria is that the site must be used by 1% or more of the continental or national population of a species within its yearly life cycle. The park beaches meet this criterion for two shorebird species: Dunlin (*Calidris alpina*) and Whimbrel (*Numenius phaeopus*).

The major periods for shorebird stopover at Presqu'ile are from mid-May to mid-June (spring migration), and from early August to mid-September (fall migration). However, shorebird migration in the fall is a protracted affair and birds can be observed anytime from early July to November. Springtime numbers rarely exceed 500 birds at a time but the peak of autumn migration (late August and early September) routinely tops 500 or more individuals. Early autumn migrants (July and early August) are adults, followed by juveniles. A list of migratory shorebirds observed at Presqu'ile is included in Table 1. Species at risk status¹, as assigned provincially by the Committee on the Status of Species at Risk in Ontario (COSSARO) and federally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and S-ranks² of provincially significant species, as assigned and tracked by the Natural Heritage Information Centre (NHIC), are included where appropriate.

An unusual phenomenon known to occur at Presqu'ile is the "grounding" of northbound migrants. Groundings periodically occur between May 20 and June 5 when weather systems force birds to discontinue their migration flights. On these occurrences, many thousands of shorebirds have been seen on the beach at one time. These flocks appear to be especially sensitive to disturbance. Groundings at Presqu'ile are known to occur from time to time but are not an annual occurrence (Section 4.6).

3.4 Preferred Shorebird Habitat

Although a number of generalizations regarding preferred shorebird habitat at Presqu'ile have been proposed, this topic was not examined scientifically until 1999 and 2000, when studies focussed on this topic. A further study occurred in 2005. The objective of

¹ COSSARO/COSEWIC: SC=Special Concern, THR=Threatened, END-R=Endangered (Regulated),

² S-Rank: S1=critically imperilled, S2=imperilled, S3=vulnerable, SZN=non-breeding migrants/vagrants

Table 1. Shorebird Species Observed Along the Beach at Presqu'île

Shorebird Species (Sorted by Family) +			
<u>CHARADRIIDAE</u> Black-bellied Plover <i>Pluvialis squatarola</i> American Golden-Plover (S1B, SZN) <i>Pluvialis dominica</i> Lesser Sand-Plover* <i>Charadrius mongolus</i> Snowy Plover* <i>Charadrius alexandrinus</i> Wilson's Plover* <i>Charadrius wilsonia</i> Semipalmated Plover <i>Charadrius semipalmatus</i> Piping Plover* (END-R; S1B, SZN) <i>Charadrius melodus</i> Killdeer <i>Charadrius vociferus</i> <u>HAEMATOPODIDAE</u> American Oystercatcher * <i>Haematopus palliatus</i>	<u>RECURVIROSTRIDAE</u> American Avocet* <i>Recurvirostra americana</i> <u>SCOLOPACIDAE</u> Spotted Sandpiper <i>Actitis macularius</i> Solitary Sandpiper <i>Tringa solitaria</i> Greater Yellowlegs <i>Tringa melanoleuca</i> Willet* <i>Tringa semipalmata</i> Lesser Yellowlegs <i>Tringa flavipes</i> Upland Sandpiper* <i>Bartramia longicauda</i> Whimbrel (S2B, SZN) <i>Numenius phaeopus</i> Hudsonian Godwit* (S2S3B, SZN) <i>Limosa haemastica</i> Marbled Godwit* (S2B, SZN) <i>Limosa fedoa</i>	<u>SCOLOPACIDAE (continued)</u> Ruddy Turnstone <i>Arenaria interpres</i> Red Knot <i>Calidris canutus</i> Sanderling <i>Calidris alba</i> Semipalmated Sandpiper <i>Calidris pusilla</i> Western Sandpiper* <i>Calidris mauri</i> Least Sandpiper <i>Calidris minutilla</i> White-rumped Sandpiper <i>Calidris fuscicollis</i> Baird's Sandpiper <i>Calidris bairdii</i> Pectoral Sandpiper (SHB, SZN) <i>Calidris melanotos</i> Purple Sandpiper <i>Calidris maritima</i> Dunlin (S3B, SZN) <i>Calidris alpina</i> Curlew Sandpiper* <i>Calidris ferruginea</i>	<u>SCOLOPACIDAE (continued)</u> Stilt Sandpiper (S2S3B, SZN) <i>Calidris himantopus</i> Buff-breasted Sandpiper <i>Tryngites subruficollis</i> Ruff* <i>Philomachus pugnax</i> Short-billed Dowitcher (S2S3B, SZN) <i>Limnodromus griseus</i> Long-billed Dowitcher* <i>Limnodromus scolopaceus</i> Wilson's Snipe <i>Gallinago delicata</i> American Woodcock <i>Scolopax minor</i> <u>PHALAROPODINAE</u> Wilson's Phalarope* (S3B, SZN) <i>Phalaropus tricolor</i> Red-necked Phalarope* (S3B, SZN) <i>Phalaropus lobatus</i> Red Phalarope* <i>Phalaropus fulicarius</i>

+ taxonomy follows the American Ornithological Union checklist 7th ed.

* less than annual in occurrence at Presqu'île

these studies was to determine if shorebird distributions on beach habitats at Presqu'île can be explained by attributes associated with abundance of invertebrate prey, their main food source. These studies have demonstrated that the relationship between shorebirds and their habitat depends on many factors.

Summary of 1999 Research

Studies in 1999, a relatively low lake level year, indicated that Owen Point was the most heavily used stopover area at Presqu'île (Pomeroy 1999). In 2000, a relatively high lake level year, the Natural Beach buffer (i.e. Beach 4) was the most heavily used area (Pomeroy 2001). In both studies, Pomeroy found a strong correlation between the density of shorebirds and the availability of algae. When algae was available the majority of birds foraged in the algae.

A factor highlighted by Pomeroy's work is the importance of the relative openness of the feeding area. During the high water summer of 2000, Pomeroy found that shorebirds preferred Beach 4 as a feeding area even though higher densities of invertebrates occurred in algae on the Natural Beach in zone NR2. The Natural Beach was much more vegetated and so less open than Beach 4. In the autumn, when water levels dropped, exposing broader mudflats, shorebird concentrations shifted to the Natural Beach. It is likely that shorebirds prefer open feeding areas where they can spot and avoid aerial predators such as falcons.

A third factor that Pomeroy examined was the relationship between relative densities of people and shorebirds. Pomeroy's data show that when open, quality feeding grounds are available, shorebirds will favour those with lower densities of people. However if the habitat is too closed (the space is narrow between the shoreline and vegetation) then shorebirds will choose to feed in areas with higher human densities. It appears that shorebirds must balance the quality of the feeding opportunities, safety from predators and the degree of human disturbance when selecting areas in which to feed and rest.

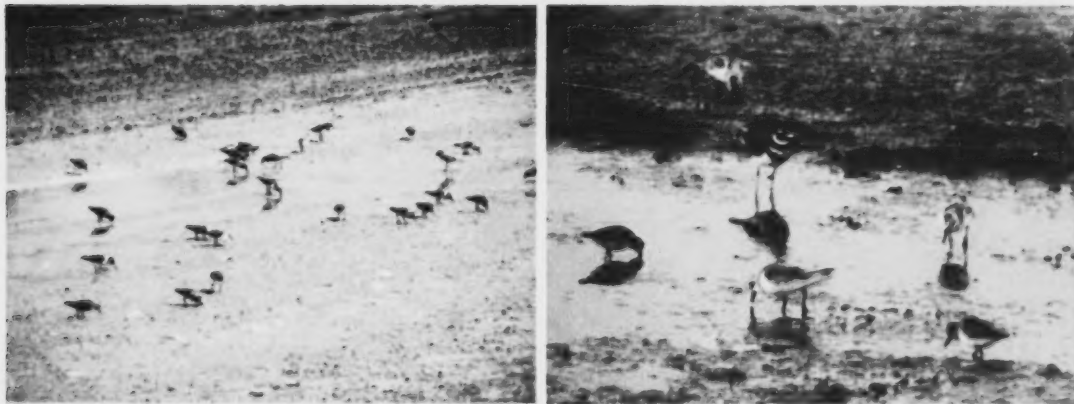


Figure 5 a, b. Shorebird foraging at Presqu'île (D. Bree)

Summary of 2005 Research

The 2005 study compared shorebird behaviour among beaches and beach microhabitats (wet, dry, shore). 2005 was an average lake level year during which few beach pools formed. A total of 23 shorebird species were observed throughout the course of this study. The most commonly observed behaviour was foraging. More birds were observed using the park's beaches in the fall than spring, although diversity was similar between both seasons. The spring migration, as expected, was brief and intermittent, while the fall migration was longer and more consistent (Rose 2005).

In 2005, the Natural Beach was a heavily used foraging area in the fall, while Beaches 2 and 3 were heavily used for foraging during spring migration. The Natural Beach may have been used less in the spring because it was too narrow as a result of water levels. Shore areas were preferred for foraging – areas of dry and wet sand in the spring and old or new algae in the fall. Some species seemed to prefer one particular type of area during both migratory seasons. Because of the range of areas used by different species of migratory shorebirds, it may be preferable to maintain both dry and wet areas within the park beaches (Rose 2005).

As in studies in previous years, Rose (2005) found that the algae had a higher invertebrate concentration and also found that it was heavily used by shorebirds. The number and biomass of invertebrates differed among beach sites. In both spring and fall, total numbers and biomass were highest at the Natural Beach. The amount of invertebrates changed among the other sites from spring to fall, with generally more invertebrates found in spring. No invertebrates were found on the beach at the north end (zone NR3).

3.5 Preferred Recreational Areas

The Presqu'île Provincial Park Management Plan (MNR 2000) policies for zone NE1 refer to the beach in this zone as the "beach managed for recreation". The zone NE1 policies include a commitment for continued maintenance of quality beach recreation opportunities where most in demand, through raking daily or as needed during the management seasons (Section 1.1, 3.1).

Most of the park's beach is open to use year round, except for Beach 4, which has no recreational use, and the Owen Point shoreline (Natural Beach), which has restricted access between ice-out and ice-in (Section 4.6, Appendix B). Temporary closures of other areas may occur. Although the Beach 1, 2 and 3 and Owen Point Trail parking lots are closed seasonally, the beaches remain open (see Appendix B for schedule).

While most use is seasonal, bird watching occurs throughout the year, with peak periods during spring and fall migration; this use is considered low intensity or low impact. The intensity of recreational beach activity ranges from low in spring and fall (mid May to end of June, Labour Day to Thanksgiving) to high in summer (July 1 to Labour Day).

Most recreational day users interested in swimming, sunbathing and beach sports (beach volleyball, Frisbee) prefer sandy, dry, flat beach areas, and primarily use Beaches 1 and 2 where most active management occurs. The beaches are one of several areas in the park popular for bird watching. Some walking and bird watching occurs along the entire length of Beaches 1, 2 and 3, other than during periodic

restrictions (e.g. during shorebird migration). Barriers along the water's edge of Beach 4 and the Natural Beach discourage walking in these areas.

Studies on foraging shorebirds in 2005 indicated that while there was some disturbance to shorebirds from recreational use, it was not significant and was limited in scope. There was more disturbance from avian predators in August and September (hawk migration period) than in the spring, and avian predator disturbance was observed more than human induced disturbance. Human induced disturbance was highest for kite flying and dog walking (dogs off leash); both caused flushing behaviour in shorebirds (Rose 2005).

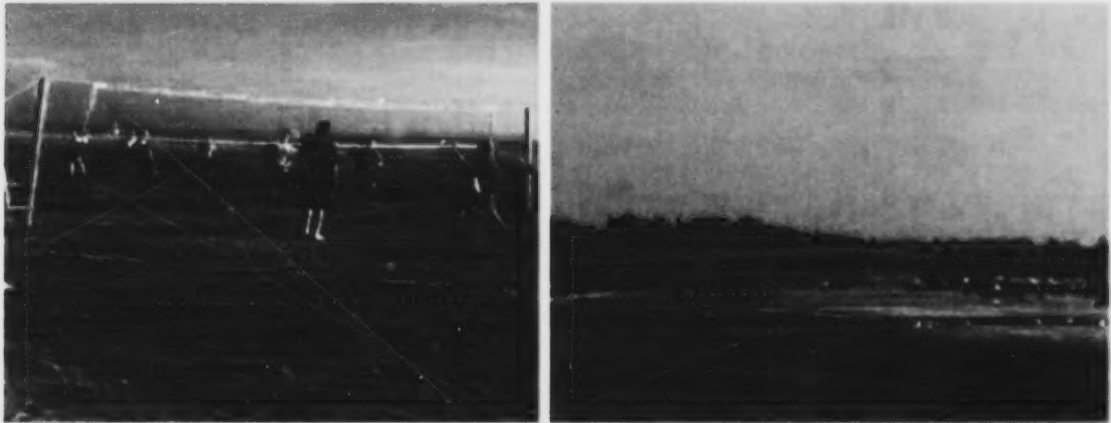


Figure 6 a, b. Recreational day use at zone NE1 beach.

4. BEACH & DUNE MANAGEMENT INFORMATION AND GUIDELINES

Since the completion of the initial Draft Presqu'ile Beach Management Strategy in 1988, the major elements of beach management at Presqu'ile have been as listed below.

Experience has shown that beach management at Presqu'ile (and elsewhere) is an evolving science. Algae accumulation along the shoreline has had implications for management of the beach for recreation (DeJong 2000). Significant changes in beach management have occurred at Presqu'ile in the past ten years. These include: the development of the Owen Point Trail; the planting of marram grass (*Ammophila breviligulata*) on previously disturbed areas; and the redistribution of algae/sand collected during the summer. Increased public awareness of the value of the beach as a shorebird staging area has also been accomplished through signage and interpretive programs.

Despite management efforts, some desired recreational outcomes for the beach have not been met. From a recreational perspective the beach is often wetter than desired. This is especially true in the early summer and after rainfall events. The degree of wetness increases toward the southern end of the beach.

An adaptive management approach will be applied to management activities. Adaptive management allows for modification of management strategies in response to monitoring and analyzing the results of past actions and experiences. Figure 7 shows adaptive management as a systematic, practical approach to improving resource management. This is in keeping with the park management plan direction for zone NE1, which states: "Experimentation with various management approaches and techniques will be encouraged, and their effects monitored."



Figure 7: Adaptive management process

The following beach and dune management techniques have been considered and are recommended for use at Presqu'île Provincial Park, in accordance with the **guidelines highlighted in bold below**. Annual timing of management is outlined in Appendix B.

4.1 Raking

Purpose

- collect algae that accumulates along the beach shoreline as a result of wave action and remove it to an alternate location to make the beach suitable for certain types of recreation (for aesthetics and odour control)
- collect litter and carcasses (e.g. birds, fish) that also wash up along the shoreline (for public health and safety)
- maintain a minimum width of beach area, with depressions, by control of vegetation growth (for both recreational use and shorebird habitat)
- direct recreational users to appropriate sites

Method

Beach raking at Presqu'île is carried out in much the same manner as at other recreational shoreline areas. Both mechanical and hand methods are used to rake sand and collect algae and detritus along the shoreline. With each method, sand is collected along with algae to varying degrees.

Hand raking has been used since the late 1990s, and while it results in less sand being removed (i.e. a better sand to algae ratio), hand raking alone cannot keep up with the rate of algae deposition. This method can be used for freshly deposited algae.

The "Algae Blade" is the primary mechanical beach maintenance tool (Table 2). The mounds of sand and algae created by raking are trucked to a storage area located elsewhere on the beach. The material collected is approximately 95% sand (by weight); the remainder is algae, fish and other associated vegetation and litter (Dejong 2000). Raked material is redeposited on the beach, usually in a berm parallel to the shoreline, the following spring after most of the organic matter has decomposed.

In some circumstances (e.g. during events of botulism on the lake) large numbers of carcasses of dead fish and birds wash up along the shoreline and cannot be adequately collected manually, so are collected twice a day using an all terrain vehicle (ATV) and trailer.

Table 2. Mechanical Raking Equipment

Equipment	Description	Comments
<i>Algae Blade</i>	A blade on a tractor used to scoop algae from the water along the shoreline and pull it onto shore. The algae is then collected by mechanical or hand methods.	Primary raking equipment used at the park.
<i>Beach Harrow</i>	An agricultural harrow pulled behind a tractor, used to loosen hard-packed sand to initiate evaporation and loosen sand and control vegetation growth.	
<i>York Rake</i>	A rake with recurved tines and adjustable depth pulled behind a tractor to collect algae and other detritus	Keeps up with algae deposition but poor sand to algae ratio. Used on a limited basis.
<i>Cultivator</i>	Pulled behind a tractor, and used to loosen soil to a depth of 6 to 8 inches and remove woody vegetation and roots.	



Figure 8 a, b. Algae sand trucked to storage site

Until 1996, the collected algae/sand material was trucked to the algae-dump adjacent to the Group Campground. Since 1996, algae/sand has been stored on the north-eastern corner of Beach 4 throughout the summer and re-spread at the water's edge in October or November or the following spring, prior to migration. This returns raked sand to the beach and dune area that it was removed from, and prevents loss of a significant amount of sand from the geomorphological system. Location and dimensions (height and width) of the berm have been designed to prevent loss of sightlines for spring migrating shorebirds. In 2004 raked sand was not returned to the beach in the fall, but

was stored over the winter on site and returned to the beach in the spring. Re-application occurred in the spring of 2005, 2006 and 2007 at a timing and location recommended by the Advisory Committee, and was found to be successful in returning the sand to the recreational beach without noticeable negative effects to spring migrants.

Frequency

Until the late 1990s, raking took place daily during the peak season on Beaches 2 and 3. Beaches 1 and 4 were raked, but not as frequently as Beaches 2 and 3. In mid-August raking operations on Beach 4 ceased, to allow for algae accumulation for shorebird foraging.

In the late 1990s raking of Beaches 1 to 4 became a regular daily occurrence from July until mid-August. Raking occurred periodically on Beaches 1 to 3 after mid-August. Raking did not occur on Beach 4 after mid-August to allow for algae accumulation for shorebird foraging. From 2001 to 2007, Beach 4 was raked only a few times and effort was focused on Beaches 1, 2 and 3. This approach has been observed to provide sufficient areas for intense recreational day use.

The beach and dunes within zones NR2 (Natural Beach) and NR3 (North Beach) have been left unmanaged other than observation stations along Owen Point Trail.

General

- **No raking prior to June and after Labour Day.**
- **Avoid raking on windy days (to prevent net loss of sand) and rake only when necessary.**
- **Natural pools and depressions containing standing water will not be raked (not including the proposed scrape in Beach 4, see Section 4.4) and will not be drained.**
- **Collect algae along entire shoreline of zone NE1 as required for recreational beach use and public health and safety. Stockpile the raked algae and sand mixture at a designated location along the beach to permit algae to dry prior to returning the sand to the beach.**
- **Continue current beach management areas within zone NE1 and limit raking to certain areas – end goal is to use a variety of techniques along the beach, with intensity decreasing as one moves from Beaches 1 to 4.**
- **Continue focusing management efforts on Beaches 1, 2, and 3, which are naturally more attractive to human visitors but not as heavily utilized by shorebirds.**
- **Use defined paths (e.g. raised or fence lined paths) to direct users to raked areas.**
- **Dispose of dead birds, fish etc. collected during raking through the local landfill.**
- **Minimize the use of mechanized beach management equipment to reduce soil compaction and disturbance to shorebirds and human visitors. Park vehicles will travel on defined pathways whenever possible. Vehicles may be used on any area of the beach for emergency purposes at the discretion of the park superintendent.**

Beaches 1 and 2

- Continue raking Beaches 1 and 2 once daily from the second week of June to Labour Day, and rake as required outside of these dates. The desired result of this action is collection of algae and a net drying of this managed beach area to improve sand for recreational beach use.

Beach 3

- Reduce frequency of raking to allow late spring and fall migrants to use the algae food source.
- Rake as required during the following dates to collect algae and to improve sand for recreational beach use (frequency of raking may be reduced based on sand condition):
 - up to twice weekly from the second week of June to the Canada Day weekend;
 - once daily from the Canada Day weekend to the Civic Holiday in August.
- Rake once weekly from the Civic Holiday to Labour Day to maintain open areas for birds; additional raking may occur if needed to maintain open areas for birds, to respond to storm events or for public health and safety.
- No raking outside of these dates.

Beaches 1, 2 and 3

- Limit raking of beaches 1, 2 and 3 to within a maximum of 70 m of the high water mark, and permit the beach beyond this limit to be modified by natural processes. This will allow the beach to return to a more natural gradient. The width of raked area may vary based on water levels (i.e. may be less than 70 m).
- Annually, prior to spring migration, reapply sand raked from the previous year along the shoreline of Beaches 1, 2 and 3, ensuring that the dune height does not obstruct shorebird view points (if material cannot be deposited in spring it will occur in the autumn). Method used will follow that determined in 2005, which involved placing material in a berm from Beaches 1 -2 approximately 15 – 20 m from the shoreline. Height of the berm of deposited sand will be no more than 30 cm so as not to obstruct sightlines for migrating shorebirds (based on observations from previous years, once deposited, the berm height will be reduced naturally through wind and water action as the season progresses).

Beach 4

- Continue to protect or enhance shorebird foraging and roosting habitat within Beach 4, which will require a minimal amount of regular management effort. Open feeding areas will be maintained by experimentation with various vegetation management techniques, including but not limited to cultivating, raking and cutting. The size of the open areas or techniques used may be modified based upon results of monitoring of shorebird use.
- Algae will be left along the shoreline as it is deposited naturally, except during conditions resulting in a public health and safety concern (e.g. blue-green algae).

Natural Beach and North Beach

- No raking.

4.2 Beach and Dune Restoration

There are several methods for retaining or trapping sand to stabilize sand dunes. Management of the beaches and dunes at Presqu'île has involved a balance between installing fencing and establishing vegetation.

Fencing

Fences can be useful for trapping sand, where vegetation alone is inadequate, and for controlling pedestrian traffic. Fences slow the wind velocity near the surface to reduce sand movement. This results in sand accumulation at the base of the fence (Rogers and Nash 2003). There are many different opinions in the literature concerning orientation of fencing, ranging from parallel to the shoreline, to perpendicular to the wind, to meandering.

In the past at Presqu'île, fence was installed each autumn and removed the following spring. Originally, fences were erected in a continuous line parallel to the water's edge roughly 30 m inland. In the mid-1990s this single fence parallel to the water was discontinued and replaced by several, shorter parallel fences that run perpendicular to the prevailing north-west winter winds. Beach fencing has not been installed since 2003.

Some sections of beach walkways are defined with fencing. These routes lie perpendicular to the winter winds. This approach has been effective in funnelling pedestrian traffic to and from the beach.



Figure 9. Beach walkway at Presqu'île Provincial Park

Revegetation

Very few species of plants can adapt to dune habitats, and those that do tolerate burial of stems and roots. Vegetation plays an important role in the dune system by trapping blowing sand (Rogers and Nash 2003).

In the early 1990s, a 20 m stretch of open beach at Presqu'île was fenced at the eastern edge of the entire length of zone NE1. This strip was planted with marram grass and the fences were left in place to protect the grass. With great difficulty, a portion of the now-buried fence was removed from Beach 1. However, because of the damage this caused to the now-established dune vegetation, it was decided to leave the remaining fences in place.

- **Allow vegetation to grow toward the lake in zones NR2 and NR3 as the beach itself grows, through natural succession.**
- **Replace fencing along the eastern edge of Beach 4 with a screen of native vegetation (e.g. marram grass, eastern cottonwood, sandbar willow) to create a visual barrier that discourages encroachment into Beach 4 by park users. A vegetation barrier would also provide insect habitat. A trail would be maintained along this route, allowing pedestrian access from the Owen Point Trail access point to the more intensely managed Beaches 1 to 3.**
- **Design walkways with a meandering pattern to prevent sand build-up and sand-scouring.**
- **Keep fencing in good repair to ensure respect by park users.**
- **Where necessary, native dune species may be re-established (e.g. marram grass). This may occur via planting or natural succession.**
- **Increase the beach slope on Beaches 1 and 2. This can be achieved by replacing the sand and algae - scraped off during the summer (Section 4.1) - along the natural high area of the beach. Wind and waves should redistribute the sand over the beach surface (first implemented in 2001).**
- **Fencing may be installed at Beach 1 and Beach 2 to encourage dune growth in areas where it would be most likely to have developed naturally. Fencing will act to capture sediment moved from winter winds (Section 4.2). Fencing would be placed in locations that do not result in infill of beach pools/depressions.**

4.3 Alien and Invasive Species Control

Alien species are species of plants, animals and micro-organisms introduced by human action outside their natural past or present distribution. Alien species that are invasive³ need to be managed on an ongoing basis. The *SE Zone Invasive Exotic Plant Management Strategy* provides guidelines for managing invasive alien plants.

Common reed grass (*Phragmites* sp.) is an aggressive invasive grass species that has flourished along the shoreline of Owen Point and is encroaching on Beach 4 in zone NE1. There are native and alien forms of this species, and the one found at Presqu'île is alien. This species has created a tall, dense visual obstruction along the shoreline, resulting in reduced habitat for shorebirds. It has also reduced sightlines for birders, and reduced the effectiveness of viewing stations.

³ **Invasive (or invading) species** are alien species whose introduction or spread threatens the environment, the economy or society, including human health.

The park management plan provides for control of alien species: "If established non-native plant species threaten natural heritage values, a program for their eradication will be developed, subject to specific policies elsewhere in this plan." It also allows for chemical herbicide use to eradicate non-native species where it has been demonstrated that other methods are not feasible (MNR 2000).

- **The established population of common reed grass along Owen Point up to Beach 4 may be managed. Techniques used will draw upon lessons learned from management in other areas and documented in literature, and will be selected to minimize impacts on the environment and other species. Control may be through chemical herbicide application or through mechanical cutting where feasible and effective. Manual cutting may be most appropriate in areas adjacent to the shoreline, and would occur in the spring and summer prior to seeding, following which cut vegetation would be maintained at an appropriate height. Staff will monitor effectiveness of techniques and develop a control plan, to be adapted based on results of monitoring. It is acknowledged that native vegetation may be incidentally affected at the same time where it is coexisting with the common reed grass.**
- **Small pockets of invasive species becoming established in other areas of the beach may be controlled by chemical herbicide application or manual cutting where feasible and effective.**
- **The entire beach will be monitored regularly to track common reed grass and other invasive species and ensure control occurs as soon as possible after new areas are detected, while it is still manageable.**

4.4 Habitat Enhancement

Shorebirds have been observed to use beach pools for foraging (Pomeroy 2000; Rose 2005). These beach pools are generally found within Beaches 1, 2, and 3 but are not generally present within Beach 4. A beach pool was observed to naturally occur within Beach 4 under extreme weather events in 2005. There is an opportunity to create a beach pool, or wader scrape, and monitor bird behaviour prior and post pool formation to determine its effectiveness in improving habitat. Such a pool may also provide habitat for other species (e.g. dragonflies and damselflies).

- **Initially, establish one scrape or pool within Beach 4 subject to appropriate monitoring (see Appendix C for project screening and evaluation under the Class EA-PPCR).**
- **Shorebird use of the area in spring / summer / fall will be monitored, building on previous methods (Section 3.4), prior to and following scrape establishment (monitoring will be required for more than one year post establishment to address variable conditions).**
- **Based on a review of beach profile survey mapping, the scrape will be located along natural drainage channels to collect runoff from the foredune.**
- **The scrape will be created through use of mechanical raking equipment and should be of sufficient depth to create a shallow pool, preferably with fine ridges in the bed of the scrape to result in areas of shallow water and wet mud as water levels decrease.**
- **Invertebrate species within the pool will be inventoried and monitored (prior to and following scrape establishment).**

- **Based on monitoring results, the effectiveness of the scrape in providing increased habitat for shorebirds will be assessed to determine whether to continue maintaining the scrape and /or create more scrapes (adaptive management approach).**

4.5 Education

Further understanding among beach users about habitat conservation for shorebird migration can be promoted through education in the park. Bird migration is one of the principal themes of park interpretation and is addressed through the park's natural heritage education program. The park management plan calls for increased emphasis on interpreting the implementation of zone resource management plans, such as this implementation plan. Providing educational tools in areas that are commonly used by shorebirds in the spring and fall may help to prevent unnecessary disturbance events and promote conservation.

One elevated sand viewing station has been created within Beach 4. There are also viewing stations along the Owen Point Trail. Access to these observation areas for migrating shorebirds provides an excellent learning opportunity for the public. To improve sightlines reduced by the increased area of common reed grass along the shoreline, the station within Beach 4 was moved closer to the lakeshore in 2006.

- **As resources permit, create interpretive signage for the viewing stations, Owen Point Trail and along beach access walkways to educate park users on the varied values of the beach and dune system (e.g. images for shorebird identification, shorebird biology / behaviour, other wildlife [dragonflies and damselflies], invasive species, dune and beach importance and habitat, cultural resources).**
- **Maintain existing viewing stations and consider adding visual screening (e.g. burlap curtain) to create a blind to minimize human disturbance to shorebirds.**
- **Viewing stations may be moved to react to changing water levels and vegetation growth (e.g. to minimize the need for vegetation maintenance to improve bird viewing sightlines). Major relocation of viewing stations will require prior assessment and review by the advisory committee, including shorebird experts.**
- **Include in communications materials information about the importance of the beach for both recreation and shorebird habitat, and how timing and location of beach management are important to providing for both values.**

4.6 Groundings and Species at Risk

As noted in Section 3.3, as a result of weather events, large numbers of shorebirds sometimes become grounded at the park. Also, on occasion, a shorebird species at risk (e.g. Piping Plover; *Charadrius melodus*) is observed within the beach and dune area. During those events, additional operational requirements will likely be required to minimize disturbance to these species.

- **A shorebird grounding plan will guide operational approaches in the event that a grounding of greater than 500 shorebirds occurs. The plan includes direction for closing of beach areas and park user education.**

- A species at risk plan will be developed to address operational requirements in the event that a shorebird assessed as a species at risk is observed at the beach, in accordance with any provincial direction for that species (e.g. Piping Plover).

4.7 Recreational Activities

Most of the intensive beach recreational use (e.g. swimming, beach sports, picnicking) occurs within zone NE1 during the summer months, outside of peak shorebird migration periods (Section 3.3 and 3.5).

Some activities extend beyond the summer season and have been observed to cause increased disturbance to shorebirds. Kite flying is one example, and it is perceived as a threat to shorebirds, who may view the kite as a raptor or other bird of prey (Section 3.5; Rose 2005). Prohibition or discouragement of these activities on the beach through education and enforcement will assist in meeting the goal of this plan.

- Beaches 1, 2 and 3 will be open year round for recreational use, other than for temporary closures for public safety, or as a result of shorebird groundings or species at risk (Section 4.6).
- Beach access roads will not be maintained for winter use (gates will be closed). Beach 1 and Owen Point Trail parking lots will be open other than during winter; parking lots for Beaches 2 and 3 will be open when the beach is ready for recreational beach use (early summer to Labour Day), other than for temporary closures as noted above.
- Recreational use of Beach 4 and the Natural Beach, other than for viewing at designated stations, will be discouraged other than in winter (December through March) through signage and access restriction.
- Recreational use of North Beach will be discouraged through signage.
- Activities that are known to cause a high level of disturbance will be prohibited on the beach, including kite flying and wind-powered beach buggies or other motorized vehicles. Kite flying is permitted in the park's day use area.
- Bicycling is prohibited on the beach, in accordance with the park management plan.
- Walking, jogging and other activities along the shoreline of Beaches 1, 2 and 3 will be discouraged during shorebird migration through education on the effects of disturbance on shorebirds; to minimize effects, users could be directed to areas at the rear of the beach.
- Manual launching and landing for non-motorized vessels (e.g. canoes, kayaks, kite board sailing) on the lake will be permitted in a designated area within zone NE1 at the north of Beach 1. Launching and landing for kite board sailing will be prohibited during the peak shorebird migration period (i.e. prohibited between May 1st and the Monday of the second full week in June annually).
- Conduct a survey of recreational users regarding timing of use of the beach and types of activities engaged in on the park beaches, to provide information to support reassessment of the policies of this plan in 10 years.
- Trail management, including maintaining viewing station sightlines, will continue.

4.8 Inventory, Monitoring and Research

There are many inventory, monitoring and research needs related to beach and dune management in the park and these are needed to enable adaptive management. Partners will be an important resource for meeting these needs.

- **Systematically monitor shorebird use of various beach habitats and incorporate this information into annual operational plans.**
- **Encourage additional research on the various values of the beach to expand on existing knowledge.**
- **Promote research to answer some of the unknowns such as Popham Bay current patterns and ground water hydrology.**
- **Monitor sediment transport over the summer and fall to determine the volumes coming to the back beach area and to determine the volumes trapped in the dunes.**
- **Encourage research to analyze the groundwater flows to determine beach hydrology and the locations of water tables, seeps, etc.**
- **Encourage research to examine the current and wave regime of the bay. This information will lead to the understanding of the transport of algae which is deposited on the beach and may allow a method to be developed to prevent this deposition.**
- **At least every 5 years, map the beach/dune area seasonally to monitor elevation changes, and modify management accordingly.**
- **Use adaptive management strategies based on this information, modifying operational details where needed to encourage optimal shorebird and recreational opportunities.**

5. IMPLEMENTATION

- Implementation of the guidelines in this plan will depend on the availability of funding and unforeseeable changes in priorities or policy.
- Implementation of the plan will meet the requirements of the *Environmental Assessment Act*, *Environmental Bill of Rights*, *Provincial Parks and Conservation Reserves Act*, *Endangered Species Act* and other pertinent legislation.
- All aspects of beach and dune management will be undertaken in accordance with the requirements of *A Class Environmental Assessment for Provincial Parks and Conservation Reserves* (Class EA-PPCR).
- The establishment of wader scrapes or pools (Section 4.4) has been re-evaluated as a recurring Category B project under the Class EA-PPCR (alter grade above high water mark to enhance habitat; Appendix C). Its implementation may proceed following a 30 day notice of completion, provided to individuals that commented on the project following release of the draft implementation plan.
- All other projects described within this implementation plan are Category "A" projects under the Class EA-PPCR, and may proceed without further evaluation (i.e. there are no Class EA-PPCR consultation requirements for implementation of these projects):
 - control invasive vegetation – ID29;
 - maintain existing beaches – ID40 (e.g. raking, sand reapplication);
 - plant vegetation – ID62 (e.g. for beach and dune management);
 - install fence or other barrier – ID63;

- trail/blind maintenance – ID70; and
 - sign or outdoor display – ID72.
- Beach management operations will be reviewed each spring to determine whether operational changes (e.g. timing or location of sand reapplication) are required for that particular year.
- Beach and dune management will be phased in as follows over a 10 year period:

5.1 Stage One

- Beach raking, Beaches 1, 2, 3 (guidelines in Section 4.1)
- Install and maintain fencing, Beaches 1 and 2 (Section 4.2)
- Complete recreational beach user survey (Section 4.7)
- Monitor proposed site for wader scrape, Beach 4 (Section 4.4)
- Prepare species at risk plan (Section 4.6)

5.2 Stage Two

- Replace fence with native vegetation, Beach 4 (Section 4.2)
- Enhance communications material content on beach values (Section 4.4)
- Establish wader scrape, Beach 4, and monitor (Section 4.4)
- Map beach and dune areas to monitor elevation changes (Section 4.8)

6. PLAN AMENDMENT AND REVIEW

- This implementation plan may be reviewed or amended to address changing issues or conditions. At 10 year intervals, this plan will be assessed for the need for a review or amendment.

7. SUMMARY AND RESULTS OF CONSULTATION

In March of 2008, notice of a 45 day comment period for the draft resource management plan was provided through a policy proposal notice posting on the Environmental Registry of the *Environmental Bill of Rights*, local media ads (Brighton Independent, Cobourg Daily Star and Trenton Trentonian) and direct mailing to the project mailing list. The draft beach and dune resource management plan was posted on the Ontario Parks website at the start of the comment period and was available for viewing at the Presqu'ile Provincial Park office.

A total of 10 responses were received (including one response received shortly after the comment period end date). These responses were received from four individuals and seven interest groups (one response was a joint submission by two groups, and was counted as one submission).

Most respondents expressed support for some particular aspects or policies in the draft plan, and raised concerns with specific background information or policies. Some groups expressed concern with the affect of proposed management actions on the ecological integrity of the park. Many concerns were raised regarding the raking policies, including the extent of raking on Beach 3 and lack of clarity of how management was being reduced from Beach 1 to Beach 4.

All input was considered during preparation of the final plan. In addition to minor modifications to address comments (e.g. to correct errors and improve clarity) and update the document terminology (e.g. "policy" was replaced with "guideline") and format, the following changes were made as a result of comments received:

Section 4.1 (Raking)

- Added guideline preventing raking or draining of beach pools.
- Guidelines have been re-organized by beach area.
- Beach 3 raking has been reduced, in keeping with the stated intent to reduce intensity of management moving from Beaches 1 and 2 to Beach 4. It will be raked in late spring to bring it to sufficient condition for recreational use, and then raked less frequently throughout the management season.
- Added guideline to reflect potential need for additional raking for recreational beach use and public health and safety, and vehicle use for emergency purposes.
- Dates modified

Section 4.3 (Invasive Species Control)

- Clarified that method used will minimize environmental impacts, and manual cutting may be most appropriate in shoreline areas.

Section 4.4 (Habitat Enhancement)

- This section was revised to identify the project to establish a wader scrape or pool as a Category "B" project under the Class EA-PPCR (not Category "A") and a record of project evaluation was added as Appendix C. No significant change was made to the project details as a result of comments received following the public notice on the draft implementation plan

Section 4.5 (Education)

- Clarified that relocation of viewing stations includes moving closer to the shoreline, to reduce the need for vegetation management to improve sightlines.

Section 4.7 (Recreational Activities)

- Added Beaches 2 and 3 to the list of beaches generally open year round.
- Added guideline for parking lot access opening and closure.
- Added guideline reflecting use restriction within North Beach (as stated in previous sections).
- Broadened guideline to include all forms of non-mechanized boating.

Section 5.0 (Implementation)

- This section was revised to reflect the re-evaluation of the project to establish a wader scrape or pool as a Category "B" project under the Class EA-PPCR (not Category "A").

Appendix B

- Revised to correct errors / inconsistencies with guidelines in the body of the document (shorebird migration signs are up year round, temporary drainage channels will not be created).
- More clearly indicates the different management activities on Beaches 3 and 4.
- Timelines for closure of Beach 1 and Owen Point gate altered (will be closed during snow accumulation).
- Removed details of staff activities in response to groundings; this is found in the shorebird grounding plan. A reduced amount of information was added to the May timeframe, but groundings can occur during many time periods.

Appendix C

- New appendix, providing the record of project evaluation for creation of wader scrape(s) or pool(s) as per the guidelines in Section 4.4.

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9. APPENDICES

Appendix A. Park Zone Descriptions – NR2, NR3 and NE1

The following information is from Section 5 of the Presqu'ile Provincial Park Management Plan (MNR 2000), and provides descriptions of the park zones that include each of the beach areas of the park.

"5.2.2 Zone NR2 - Owen Point-Islands (200 ha)

This zone protects:

- a representative site for landform interpretation of Owen Point and Gull Island,
- the Owen Point and islands portions of the provincially significant Presqu'ile Area of Natural and Scientific Interest,
- the Owen Point portions of the provincially significant Presqu'ile Bay Marsh wetland,
- significant, very highly sensitive water bird nesting habitat,
- potentially significant, sensitive land bird nesting habitat; two species regulated under the *Endangered Species Act* nested here in the past,
- significant monarch butterfly migration areas,
- very highly significant shorebird and water and land bird migration areas."

"5.2.3 Zone NR3 - North Beach-Foredunes (13 ha)

This zone protects:

- representative sites for landform interpretation of the beach and foredunes,
- significant beach and foredune vegetation,
- potentially significant, sensitive land bird nesting habitat; one species regulated under the *Endangered Species Act* nested here in the past,
- a highly significant shorebird and water and land bird migration area."

"5.4.1 Zone NE1 - Beach-Foredunes (49 ha)

This zone includes the 1.2 km of sand beach that is currently managed, the foredunes behind it, and beach parking and access roads. The beach is both an outstanding recreational resource and a highly significant shorebird and water and land bird migration area. The windward foredunes are highly sensitive landforms.

This zone includes the waters of Lake Ontario within 100 m of shore, including the waters off Zone NR3.

In this plan, "beach managed for recreation means:

- the entire length of beach in Zone NE1,
- from the water's edge to about 10 m in front of the dunes,
- for Beach 4 (the southernmost 200 m of the beach), from June 8 to August 15, and for the rest of the beach, from June 8 to Labour Day (the "management seasons").

"On the beach managed for recreation, algae, fish, litter, etc. and associated sand will be raked and the raked material removed, daily or as needed to maintain optimal recreational conditions during the management seasons."

Appendix B. Dates for Beach Management (subject to staff availability)

DATE	Specific Date* (Year:)	ACTIVITY	CONSIDERATIONS
April 1 st or as weather permits		Beach 1 access road and Owen Point Trail gate (access to Beach 4) opened.	
April until the Friday of the 2 nd week of May		Removal of fencing if required.	This should not be left later to avoid potential disturbance to shorebirds by predators.
April until the Friday of the 2 nd week of May		Removal of woody debris and litter within Beaches 1-3, one beach per day.	Biodiversity Specialist should be consulted to ensure not disturbing any unusual concentrations or rare species before management proceeds.
Mid April (timing based on advice of committee)		Redistribute the previous summer's algae-sand along Beaches 1-3.	
From the 2 nd Friday in May to the Monday of the second full week of June		No beach management activity will occur.	If a grounding occurs, enforcement personnel will be informed and beach access by the public will be limited until the birds leave of their own accord.
The Monday of the 2 nd or 3 rd week of June		Beach 2 and 3 access roads opened.	Once the beach is ready for recreational use.
The Monday of the 2 nd full week of June, (but no earlier than June 8 th) until the Canada Day weekend		Beaches 1 and 2 raked, once daily as required. Beach 3 raked up to twice weekly. Beach 4 raked only when required to improve shorebird habitat.	
Canada Day weekend to Civic Holiday in August		Beaches 1, 2 and 3 raked, once daily as required. Beach 4 raked only when required to improve shorebird habitat.	From June through mid August, vegetation on Beach 4 may be raked and/or cut when required to improve shorebird habitat (improve sightlines and open feeding areas).
The day after the Civic Holiday until August 15 th		Beaches 1 and 2 raked, once daily as required. Beach 3 raked once weekly as required.	Additional raking of shoreline may be required along Beach 3 to respond to storm events or for public health and safety (at discretion of park superintendent).

		Beach 4 raked only when required to improve shorebird habitat.	
Monday of the week containing August 15 th until Labour Day weekend		Beaches 1 and 2 raked, once daily as required. Beach 3 raked once weekly as required. Beach 4 not raked.	Additional raking of shoreline may be required along Beach 3 to respond to storm events or for public health and safety (at discretion of park superintendent). Cease raking of Beach 4 (peak fall migration is starting).
Labour Day		Beach 2 and 3 access roads closed.	These beach areas can be accessed via Beach 1 or Owen Point Trail access until they are also closed.
Post-Labour Day Weekend until mid-October		All beach management practices cease with the exception of litter pick-up and repair to facilities.	
Mid-October to mid-November		Fencing is installed if required.	
December 20 th or after the first significant snowfall		Beach 1 access road and Owen Point Trail gate (access to Beach 4) closed and locked.	Access and parking areas are not plowed in winter; users can park at the park store and walk in to Beach 4.

*Specific date will be entered by park staff each year.

Appendix C. Record of Project Screening and Evaluation

Project Identification

Creation of wader scrape / pool (recurring project)

(Project ID 61 / 15 - Alter grade above high water mark / enhance, rehabilitate, restore, or manage habitat)

Step 1, Scoping

Previous planning and consultation

The Park Management Plan (2000) states that:

- A central objective of the zone NE1 resource management plan will be to optimize conditions for migrating birds.
- Wildlife management planning specific to individual habitat issues (for example shorebird migration in zone NE1) will be accomplished through resource management plans.

Required evaluation and consultation steps completed and remaining

- As a category B project, an initial public notice, consideration of public input during final project evaluation, and a notice of completion are required.

Step 2, Public Notice

- In March 2008, notice of release of the draft beach and dune resource management plan (which described the project) was placed in local media, on the Environmental Bill of Rights Environmental Registry, on the Ontario Parks website and sent directly to a local contact list.
- The draft plan was placed on the Ontario Parks website.
- There was a 45 day comment period for the draft plan. See Section 7.0 for a full description of the public notice.

Step 3, Project Screening and Evaluation

Purpose and rationale

- Through raking, create a shallow pool within Beach 4 (zone NE1) to enhance foraging habitat for migrating shorebirds. Depending on the results of monitoring, additional scrape(s) could be created. See Section 4.4 for full description of the project.

Project alternatives

- The only alternative to the wader scrape is to not do the project, and not attempt to provide additional pool(s) to those naturally occurring elsewhere on the beach. In this location it is preferable to use active management to enhance succession and increase the park's habitat diversity.

Study area and environment affected

- Beach 4 area of zone NE1, as described in Section 4.4 and illustrated in Figure 1.

Applicable MNR policies, procedures, manuals, guidelines

- MNR extension notes
- Approved recovery strategies for SAR birds

Potential environmental effects

- Net potential environmental effects will be positive, as this project may increase habitat diversity.

Required mitigation, remedial, and enhancement measures

- Project activities will be timed to avoid disturbance to shorebirds.

Monitoring requirements

- Monitoring of shorebird use of the area in spring, summer and fall (building on previous methods) prior to and after project implementation to determine the effectiveness of the project and whether to continue maintaining the scrape and/or create more scrapes.
- A separate monitoring scheme will be prepared with additional details.

Anticipated level of public or agency concern

- Low to none – this is a relatively inexpensive project that has potential for net positive environmental effects.

Category and rationale

- This project has been assigned to Category B.
- The proposed project will have net positive environmental effects, and there is little anticipated public or agency concern.

Consultation conducted, issues raised and changes in response to input

- Project was described in the guidelines of the draft beach and dune resource management plan, released March 2008, followed by a 45 day comment period.
- Seven (7) comments were received on this project: 5 in support, 1 concerned (potential for mosquito breeding), 1 other (monitor other invertebrates).
- In response to input and to clarify the project details, minor changes were made to Section 4.4 of the implementation plan (more clearly states monitoring requirements prior and post scrape establishment, includes monitoring of invertebrates). No significant changes were made to the project details.

Determination

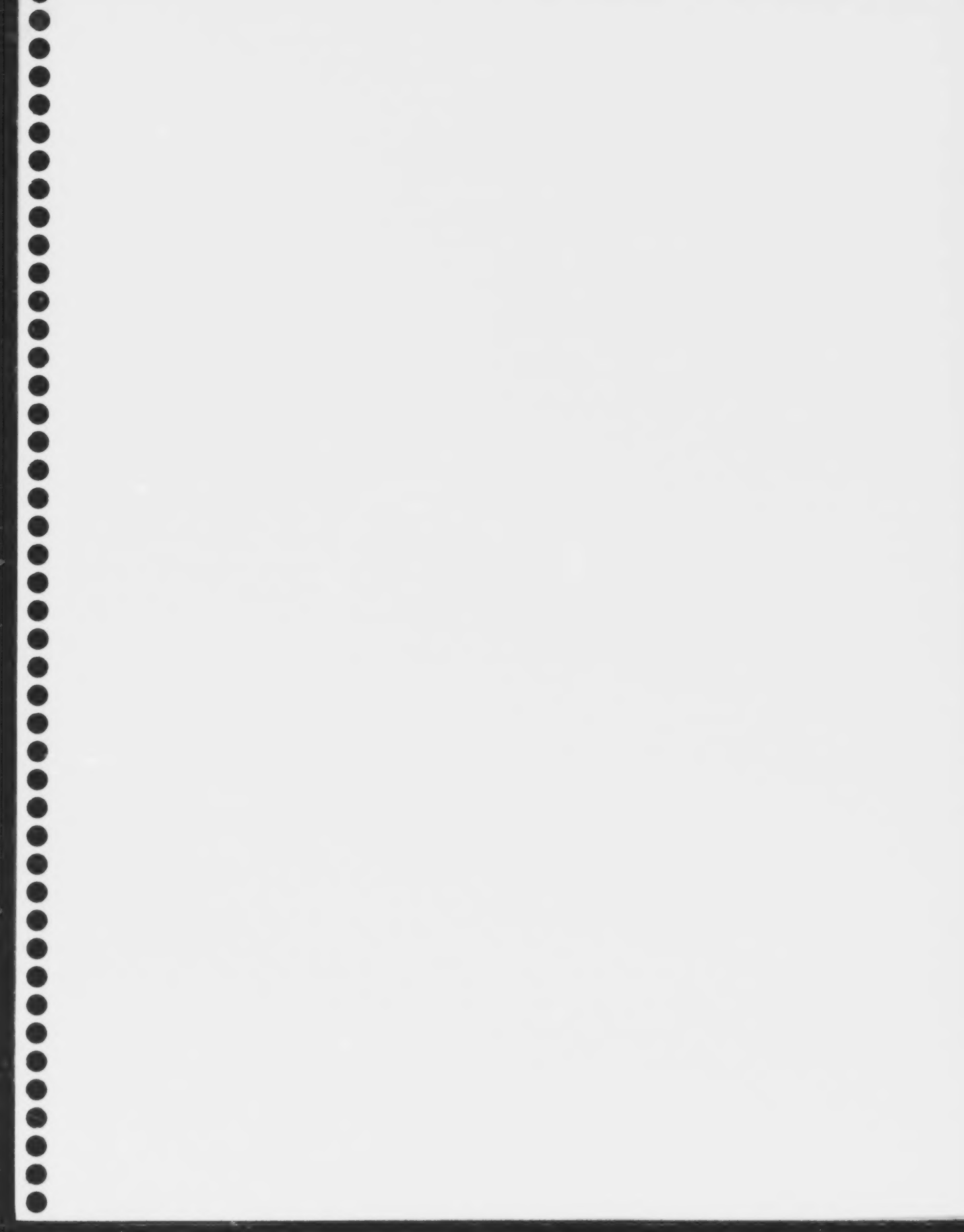
- Proceed to Step 4.

Step 4, Notice of Completion

- Issue notice of completion with 30 day comment period.

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	NII	Unk	+L	+M	+H	
<input type="checkbox"/> Values for which the provincial park or conservation reserve was established						X			Optimizing conditions for shorebirds is an objective of the park management plan
Natural Environment Considerations									
<input type="checkbox"/> Air quality				X					
<input type="checkbox"/> Water quality or quantity (ground or surface)				X					
<input type="checkbox"/> Species at risk or their habitat						X	X		May create additional habitat for "at risk" birds
<input type="checkbox"/> Significant earth or life science features				X					
<input type="checkbox"/> Fish or other aquatic species, communities, or their habitat (including numbers, diversity and movement of resident or migratory species)				X					
<input type="checkbox"/> Land subject to natural or human-made hazards				X					
<input type="checkbox"/> Recovery of a species under a special management program (e.g. elk restoration)				X					
<input type="checkbox"/> Ecological integrity						X			Habitat enhancement will improve biodiversity
<input type="checkbox"/> Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species)						X			Habitat enhancement will improve biodiversity
<input type="checkbox"/> Natural vegetation and terrestrial habitat linkages or corridors through fragmentation, alteration and/or critical loss				X					
<input type="checkbox"/> Permafrost				X					
<input type="checkbox"/> Soils and sediment quality				X					
<input type="checkbox"/> Drainage or flooding				X					Project will use natural drainage channels
<input type="checkbox"/> Sedimentation or erosion				X					
<input type="checkbox"/> Release of contaminants in soils, sediments				X					
<input type="checkbox"/> Natural heritage features and areas (e.g. areas of natural and scientific interest, provincially significant wetlands)				X					
<input type="checkbox"/> Other (specify)									
Land Use, Resource Management Considerations									
<input type="checkbox"/> Remoteness (access inaccessible areas)				X					
<input type="checkbox"/> Navigation				X					
<input type="checkbox"/> Other projects within a park or reserve						X			Habitat enhancement is part of an ecosystem-based approach to resource management in the park
<input type="checkbox"/> Other projects outside a park or reserve				X					
<input type="checkbox"/> Traffic patterns or traffic infrastructure				X					
<input type="checkbox"/> Public or private recreation				X					
<input type="checkbox"/> Or create excessive waste materials				X					
<input type="checkbox"/> Or commit a significant amount of a non-renewable resource (e.g. aggregates, agricultural land)				X					
<input type="checkbox"/> Noise levels				X					
<input type="checkbox"/> Views or aesthetics						X			Part of the aesthetics of the park is its diverse habitats and the wildlife

Screening Criteria "This project may affect ..."	Rating of Potential Net Effect								Comments, Rationale
	-H	-M	-L	NII	Unk	+L	+M	+H	
									they support
■ Another project or be a precondition or justification for implementing another project						X			Recurring project; potential for additional scrape(s)
■ Uses, persons or property outside a park or reserve				X					
■ Other (specify)									
Social, Cultural, and Economic Considerations									
■ Archaeology				X					
■ Built heritage				X					
■ Cultural heritage landscapes				X					
■ Sacred or traditional use sites				X					
■ Or displace people, businesses, institutions, or public facilities				X					
■ Community character, enjoyment of property, or local amenities				X					
■ Demands on government services or infrastructure			X						Habitat enhancement requires staff time and resources
■ Public health and/or safety				X					
■ Local, regional or provincial economies or businesses				X					
■ Tourism values (e.g. resource-based tourist lodge)				X					
■ Other (specify)				X					
Aboriginal Considerations									
■ First Nation reserves or communities				X					
■ Spiritual, ceremonial, or cultural sites				X					
■ Traditional land or resources uses, or affect economic activities				X					
■ Aboriginal values				X					
■ Lands subject to land claims				X					
■ Other (specify)									





Printed on Recycled Paper

MNR 52223
(30 P R , 23 03 09)
ISBN 978-1-4249-8698-9 (Print)
ISBN 978-1-4249-8699-6 (PDF)